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10/529,056

03/24/2005

Steven J. Harris

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07/25/2006

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EXAMINER

WEST, PAUL M

ART UNIT

PAPER NUMBER

2856

DATE MAILED: 07/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/529,056

Applicant(s)

HARRIS ET AL.

Examiner

Paul M. West

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 7-15 is/are rejected.
- 7) ☒ Claim(s) 6 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 03242005,06232005.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 7 and 12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
3. Regarding claim 7, the phrase "second resistivity sensor" is unclear because there is no reference made in the claim to a first resistivity sensor.
4. Regarding claim 12, the phrase "for example" renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

### ***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-3,7,9,11,12 and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Byrne et al. (5446369).
7. Regarding claim 1, Byrne et al. teach a microsensor including a plurality of different corrosion sensors 100, each sensor having a part formed from a patterned

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conductive thin film and the different sensors being arranged to be differently influenced by corrosive media in an area in which the unit is mounted (Col. 2, lines 43-55), the microsensor providing a separate output from each of the sensors.

8. Regarding claims 2 and 3, the corrosion sensors 100 comprise a plurality of resistivity sensors 102 (each of multiple corrosion sensors has a resistivity sensor) each having a thin film track arranged to provide a measurable variation in resistivity in response to prolonged exposure to corrosive media (Col. 1, lines 65-68; Col. 2, line 1).

9. Regarding claim 7, Byrne et al. teach using having a corrosion sensors of with resistivity sensors of different thicknesses (Col. 4, lines 51-56).

10. Regarding claim 9, the corrosion sensors include a sensor with a thin film track having a first surface type and a different sensor with a thin film track having a second different surface type, in this case treated and untreated surfaces (Col. 2, lines 43-55).

11. Regarding claim 11, each of the corrosion sensors includes a resistivity sensor and a reference sensor which provides a measurable variation in resistivity in response to changes in temperature, the reference sensor have the same temperature dependence as the resistivity sensor (Col. 4, lines 21-30).

12. Regarding claim 12, a resistance thermometer sensor is included in the microsensor and arranged to measure temperatures in an area where the microsensor is mounted (Col. 4, lines 63-68; Col. 5, lines 8-10).

13. Regarding claim 15, Byrne et al. teach a system which includes a data processor, which receives and processes data and provides corrosion analysis (Col. 2, lines 32-33).

***Claim Rejections - 35 USC § 103***

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Byrne et al. in view of Ansuini et al. (4,780,664).

16. Regarding claims 4 and 5, Byrne et al. do not teach two resistivity sensors having conductive tracks of different widths. Ansuini et al. teach a sensor for sensing corrosion, including two resistivity sensors 60,80, wherein a first resistivity sensor 60, has a thin film track 64 of a first width, and a second resistivity sensor 80 has a thin film track 86 of a second width which is less than half of the first width (see Fig. 2). It would have been obvious to one of ordinary skill in the art to combine the teachings of Ansuini et al. with the apparatus of Byrne et al. because using varying widths of thin film allows both the instantaneous and the time averaged corrosion rate to be measured.

17. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Byrne et al. in view of Agarwala et al. (5,338,432).

18. Regarding claim 10, Bryne et al. do not teach the sensors including a galvanic sensor. Agarwala et al. teach a corrosion sensor 10 which is a galvanic sensor having one thin film track 16a made of a first metallic material and another thin film track 16b

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made of a second different metallic material, and the tracks being arranged to provide a measurable variation in galvanic voltage in response to exposure to an electrolyte (Col. 3, lines 53-58). It would have been obvious to one of ordinary skill in the art to combine the teachings of Agarwala et al. with the apparatus of Byrne et al. because using a galvanic sensor allows for the sensing of corrosive elements potentially before substantial corrosion has taken place.

19. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Byrne et al. in view of Nakada et al. (6,516,785).

20. Regarding claim 13, Byrne et al. do not teach the microsensor including an airflow sensor. Nakada et al. teach a thermal airflow sensor to be used in corrosive environments, and further teach that airflow affects corrosion (Col. 2, lines 36-40), therefore it would have been obvious to one of ordinary skill in the art to incorporate the airflow sensor of Nakada et al. with the apparatus of Byrne et al, because it would provide more information about the corrosivity of the environment and rates at which corrosion is occurring near the sensor.

21. Claims 8 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Byrne et al.

22. Regarding claim 8, Byrne et al. do not specifically teach two corrosion sensors which have tin films tracks made of different metallic compositions, however, Byrne et al. do teach one monitoring system controlling a number of corrosion sensors at many

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different sites (Col. 1, lines 54-58), and further teach a sensor being made from the same material as the structure it is monitoring. Therefore it would have been obvious to one of ordinary skill in the art to make some of the sensors out of different metallic compositions in order to be able to monitor sites made of different materials.

23. Regarding claim 14, Byrne et al. do not teach the corrosion sensors being on the same substrate, however they do teach each sensor being provided on an insulating substrate 108, and further teach two sensor being used together in the same area (Col. 2, lines 43-55). It would have been obvious to one of ordinary skill in the art to place both sensors on the same substrate because it would make the sensors easier to transport and install, i.e. transporting and installing one unit instead of two.

#### ***Allowable Subject Matter***

24. Claim 6 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.


#### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul M. West whose telephone number is (571) 272-8590. The examiner can normally be reached on Monday-Friday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on (571) 272-2208. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



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